

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicant: APOSTOLOPOULOS Patent Application  
Application No.: 10/617,348 Group Art Unit: 2132  
Filed: November 14, 2003 Examiner: Lemma, Samson B.  
For: METHOD AND SYSTEM FOR PROVIDING TRANSCODABILITY TO FRAME  
CODED STREAMING MEDIA

APPEAL BRIEF

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I. Real Party in Interest

The assignee of the present invention is Hewlett-Packard Development Company,  
L.P.

II. Related Appeals and Interferences

There are no related appeals or interferences known to the Appellant.

### III. Status of Claims

Claims 1-6, 10, 12-14, 17-25, 29-34 and 36-44 remain pending. Claims 1-6, 10, 12-14, 17-25, 29-34 and 36-44 are rejected. Claims 7-9, 11, 15, 16, 26-28, 35 and 45 are cancelled. This Appeal involves Claims 1-6, 10, 12-14, 17-25, 29-34 and 36-44.

IV. Status of Amendments

No amendment subsequent to the Final Action has been filed in this case.

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## V. Summary of Claimed Subject Matter-

As recited in Claim 1, “[a] method for providing transcodability to media data in a network” is described. This embodiment is depicted at least in Figure 2. “Figure 2 is a block flow diagram 200 illustrating a method of achieving a secure media streaming system that offers a means of overcoming the aforementioned shortcomings. In process 200, streamable media data is separated into appropriately sized segments suitable for incorporation into a data packet.” (page 13, lines 10-14). “At 220, the segments, which may be encrypted, are combined into data packets along with a payload header that is readable by an intermediate transcoder. In some embodiments, the data segment and the transcoder-readable payload header comprise the payload of the data packet. There is also, typically, a packet header associated with every packet that contains the size, timing, addressing and other information associated with transmitting a packet in a network. The packet header and the transcoder-readable payload header do not accomplish the same functions. The transcoder-readable payload header comprises information related to truncation points and the relative dependencies of the coded frames contained in the payload” (page 13, line 21, through page 14, line 10).

As recited in Claim 20, “[a] method for transcoding media in a network” is described. This embodiment is depicted at least in Figure 7. “Figure 7 illustrates a block flow diagram of the transcoding process employed in embodiments of the present invention. Transcoding process 700 starts with accessing the media stream at 710. The media stream comprises packets with transcoder-readable payload headers which are read at 720. The transcoder-readable payload header contains information salient to the contents of the packet, such as truncation points, start and end points of each coded frame, the relative importance of each

frame, etc. that can be used in determining whether to delete a given part of the packet" (page 27, line 19, through page 28, line 5). "Deleting appropriate portions of a packet payload of a packet is accomplished at 730. It is noted that deleting a part of a packet without affecting the encryption or coding of the remainder of the packet produces a smaller packet, more amenable to communication, and re-transmission, in a bitrate-limited environment or to a receiving device more amenable to a smaller packet. A transcoder-readable header is written, in some embodiments, at 740 and applied to the truncated data packet" (page 28, lines 5-12).

As recited in Claim 34, "[a] computer readable medium having a data packet stored therein for causing a functional change in the operation of a device" is described. This embodiment is depicted at least in Figure 5B. "It is noted here again that a packet payload can comprise a portion of a frame, a single frame, or a plurality of coded frames. As shown at 513, a transcoder-readable payload header (TRH) is written for each payload and a packet header (PHDR) is written for each packet" (page 19, lines 4-8). "Again, in this embodiment of the present invention, the transcoder readable payload headers reflect truncation, or start and end, points of portions of the packet payload, as well as the relative importance of those portions" (page 19, lines 16-19).

VI. Grounds of Rejection to Be Reviewed on Appeal

1. Claims 1-6, 10, 12-14, 17-25, 29-34 and 36-44 are rejected under 35 U.S.C. § 103(a) as being unpatentable over “Secure Scalable Video Streaming for Wireless Networks” by S. Wee et al. (hereinafter, “Wee”) in view of “An Efficient Quality Scalable Motion-JPEG2000 Transmission Scheme” by Qiu et al. (hereinafter, “Qiu”).

## VII. Argument

### 1. Whether Claims 1-6, 10, 12-14, 17-25, 29-34 and 36-44 are unpatentable under 35 U.S.C. §103(a) over Wee in view of Qiu.

According to the Final Office Action mailed April 18, 2008, Claims 1-6, 10, 12-14, 17-25, 29-34 and 36-44 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Wee in view of Qiu. The Appellant has reviewed Wee and Qiu and respectfully submits that the claimed embodiments are patentable over Wee in view of Qiu.

Appellant respectfully notes that Independent Claim 1 recites “separating an amount of data into a segment; and combining said segment and a transcoder readable payload header into a data packet payload, wherein said segment comprises data coded in a plurality of frames and wherein said transcoder readable payload header comprises information associating a relative importance with each of said frames” (emphasis added). Independent Claims 20 and 34 recite similar limitations. Claims 2-6, 10, 12-14, 17-19, 21-25, 29-33 and 36-44 depend on Claim 1, 20 or 34 and recite additional limitations.

“As reiterated by the Supreme Court in *KSR*, the framework for the objective analysis for determining obviousness under 35 U.S.C. 103 is stated in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). Obviousness is a question of law based on underlying factual inquiries” including “[a]scertaining the differences between the claimed invention and the prior art” (MPEP 2141(II)). “In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious” (emphasis in original; MPEP 2141.02(I)). Appellant notes that “[t]he prior art reference (or

references when combined) need not teach or suggest all the claim limitations, however, Office personnel must explain why the difference(s) between the prior art and the claimed invention would have been obvious to one of ordinary skill in the art” (emphasis added; MPEP 2141(III)).

Furthermore, Appellant notes that “[a] prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention” (MPEP 2141.03(IV)).

Appellant understands Wee to describe a method of secure scalable streaming (SSS) for wireless networks (Abstract). With reference to Section 4.1 and Figure 4, Wee recites that “the video frame is segmented into tiles” (Section 4.1). Accordingly, Wee discloses that segments include portions of video frames. In other words, each segment includes a fraction of a video frame.

In contrast, the claimed embodiments recite “wherein said segment comprises data coded in a plurality of frames”. Accordingly, Appellant submits that Wee does not teach, describe or suggest the claimed embodiment. Moreover, Appellant respectfully submits that by disclosing that a “video frame is segmented”, Wee teaches away from “wherein said segment comprises data coded in a plurality of frames” as claimed.

Appellant notes the assertion in the instant Office Action that Wee discloses “wherein said segment comprises data coded in a plurality of frames” by citing

[page 3, 1<sup>st</sup> column, 2<sup>nd</sup> paragraph and see figure 4, SSS coding] (As it is shown on figure 4, on the first box, ‘the video frames’, which implies plurality of frames are segmented into tiles/ these implies [sic] that each tiles are comprise of plurality of frames [sic]. Furthermore, As shown on figure 4, ref. Second box, these tiles are coded. Therefore, these meets the limitation recited as wherein said segment/tiles comprises data coded in a plurality of frames” (Final Office Action mailed April 18, 2008, paragraph 5, page 7, lines 16-22).

However, Appellant submits that this interpretation is not supported by the teachings of Wee. For instance, with reference to Figure 4 of Wee, an SSS coder shown in the lower portion of Figure 4 while examples of the input and output to the described operations of the SSS coder are shown in the upper portion of Figure 4. As shown in the upper portion representing the output of “Segment video frames into tiles” is a single frame segmented into four tiles. Appellant understands Wee to describe that each frame of a plurality of frames are segmented into tiles. For clarification, Appellant understands “Segment video frames into tiles” to disclose that the segmenting a video frames into tiles is performed for more than one frame, but that each frame is segmented individually, as disclosed in Section 4.1 of Wee.

Appellant notes that the purpose of Wee is to describe a secure scalable coding technique that allows for transcoding without decrypting the data. Appellant notes that Wee, at Section 5.1, recites

The scalable video coding and packetization modules of the SSS coder were jointly designed to enable downstream transcoding operations to be performed by simple packet truncation. SSS coding is similar to bitstream scalable video coding, but it further partitions the video frames into scalable packets that correspond to predetermined regions or tiles in the video sequence. The JPEG 2000 image compression standard has many of these characteristics of independently coded tiles and scalability within the tile. We build upon these concepts by extending this level of scalability to video frames and by combining it with the packetization process; furthermore, we jointly design this smart packetization with the encryption process.

Separate regions or tiles of a video frame are encoded into one or more packets. (emphasis added; Section 5.1).

Appellant respectfully submits that in order to provide scalability of video frames, Wee discloses that a “video frame is segmented into tiles” (Section 4.1), and that the interpretation presented in the Office Action is not supported by the teachings of Wee.

As presented above, Appellant respectfully submits that Wee must be considered “as a whole, including portions that would lead away from the claimed invention” (emphasis in original; MPEP 2141.03(IV)). Appellant respectfully submits that by relying solely on the lower portion of Figure 4 and disregarding the upper portion of Figure 4, the Office Action fails to consider Wee “as a whole” as required.

Appellant notes that Figure 4 of Wee discloses an SSS coding method. Referring to Figure 4 of Wee, an SSS coder shown in the lower portion of Figure 4 while examples of the input and output to the described operations of the SSS coder are shown in the upper portion of Figure 4. Appellant respectfully submits that both the upper portion and lower portion of Figure 4 are used in describing the SSS coding method, that the upper portion and lower portion are complementary, and that the teachings of the upper portions and lower portions of Figure 4 are not separable. In particular, Appellant respectfully submit that nowhere does Wee suggest that the upper portion and lower portions of Figure 4 are separable. In contrast, by specifically reciting that “the video frame is segmented into tiles” (Section 4.1), Appellant respectfully submits that by disclosing that Wee teaches away from such an interpretation.

Furthermore, Appellant respectfully submits that Qiu does not overcome the shortcomings of Wee. Appellant understands Qiu to describe a transmission scheme for Motion-JPEG2000 video sequences over IP networks (Abstract). In particular, Appellant respectfully submits that Qiu does not teach, describe or suggest “wherein said segment comprises data coded in a plurality of frames”, and is not relied upon as providing such a teaching.

Appellant understand the Response to Arguments of the Office Action mailed April 18, 2008, to reiterate the assertion that the lower portion of Figure 4 discloses by implication “the fact that the input video frames being a plurality of frames instead of a single frame” (Office Action mailed April 18, 2008; page 3, lines 20-22).

In supporting the rejection of Claims 1-6, 10, 12-14, 17-25, 29-34 and 36-44 and in response to the Applicant’s argument that Wee does not support the interpretation in the Response to Office Action mailed January 9, 2008, that Wee discloses “wherein said segment comprises data coded in a plurality of frames” as claimed, the Final Office Action mailed April 18, 2008, recites:

Examiner would point out that even though what is cited by the examiner is the lower portion of figure 4, contrary to the Applicant argument that this interpretation is not supported by the teachings of Wee, Wee on page 2, column 2, last sentence/last two lines of section 4.1, “SSS coding” discloses the following.

“The SSS coder encodes the input video frames into secure scalable packets that can be streamed to heterogeneous clients over wired networks.”

This implies the fact that the input video frames being a plurality of frames instead of a single frame as argued by the applicant’s representative. (emphasis added; Office Action mailed April 18, 2008; page 3, lines 12-22).

As presented above, Appellant respectfully submits that Wee must be considered “as a whole, including portions that would lead away from the claimed invention” (emphasis in original; MPEP 2141.03(IV)). Appellant respectfully submits that by relying solely on the lower portion of Figure 4 and disregarding the upper portion of Figure 4 and the recitations of Section 4.1 of Wee, the Office Action fails to consider Wee “as a whole” as required.

Appellant notes that Figure 4 of Wee discloses an SSS coding method. Referring to Figure 4 of Wee, an SSS coder shown in the lower portion of Figure 4 while examples of the input and output to the described operations of the SSS coder are shown in the upper portion of Figure 4. Appellant respectfully submits that both the upper portion and lower portion of Figure 4 are used in describing the SSS coding method, that the upper portion and lower portion are complementary, and that the teachings of the upper portions and lower portions of Figure 4 are not separable. In particular, Appellant respectfully submit that nowhere does Wee suggest that the upper portion and lower portions of Figure 4 are separable. In contrast, by specifically reciting that “the video frame is segmented into tiles” (Section 4.1), Appellant respectfully submits that by disclosing that Wee teaches away from such an interpretation.

As presented above, the upper portion of Figure 4 of Wee shows that a representation of the output of “Segment video frames into tiles” is a single frame segmented into four tiles. Appellant understands Wee to describe that each frame of a plurality of frames are segmented into tiles. For clarification, Appellant understands “Segment video frames into tiles” of Figure 4 to disclose that the segmenting a video frames into tiles is performed for more than one frame, but that each frame is segmented individually, as disclosed in Section 4.1 of Wee.

In view of the combination of Wee in view of Qiu not satisfying the requirements of a *prima facie* case of obviousness, Appellant respectfully submits that independent Claims 1, 20 and 34 overcome the rejection under 35 U.S.C. § 103(a), and that these claims are thus in a condition for allowance. Appellant respectfully submits the combination of Wee in view of Qiu also does not teach or suggest the additional claimed features of the present invention as recited in Claims 2-6, 10, 12-14 and 17-19 that depend from independent Claim 1, Claims 21-25 and 29-33 that depend from independent Claim 20, and Claims 36-44 that depend from independent Claim 35. Therefore, Appellant respectfully submits that Claims 2-6, 10, 12-14, 17-19, 21-25, 29-33 and 36-44 also overcome the rejection under 35 U.S.C. § 103(a), and are in a condition for allowance as being dependent on an allowable base claim.

### Conclusion

Appellant believes that pending Claims 1-6, 10, 12-14, 17-25, 29-34 and 36-44 are patentable over Wee in view of Qiu as the rejection under 35 U.S.C. §103(a) does not satisfy the requirements of a *prima facie* case of obviousness.

Accordingly, Appellant respectfully submits that the rejection of Claims 1-6, 10, 12-14, 17-25, 29-34 and 36-44 under 35 U.S.C. §103(a) is improper and should be reversed.

The Appellant wishes to encourage the Examiner or a member of the Board of Patent Appeals to telephone the Appellant's undersigned representative if it is felt that a telephone conference could expedite prosecution.

Respectfully submitted,  
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Dated: August 18, 2008

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### VIII. Appendix - Clean Copy of Claims on Appeal

1. A method for providing transcodability to media data in a network, comprising:
  - separating an amount of data into a segment; and
  - combining said segment and a transcoder readable payload header into a data packet payload, wherein said segment comprises data coded in a plurality of frames and wherein said transcoder readable payload header comprises information associating a relative importance with each of said frames.
2. The method described in Claim 1 wherein said frames are coded using a method comprising I, P and B-frames.
3. The method described in Claim 1 wherein said frames are coded using an MPEG coding scheme.
4. The method described in Claim 1 further comprising encrypting said segment.
5. The method described in Claim 1 further comprising encrypting said transcoder readable payload header.
6. The method described in Claim 5 wherein said transcoder readable payload header is enabled to be decrypted independently of other portions of said data packet.

10. The method described in Claim 1 wherein said data packet payload is combined in a data packet with a packet header independent of said transcoder readable payload header.
12. The method described in Claim 1 wherein said transcoder readable payload header comprises information identifying truncation points within said data packet payload.
13. The method described in Claim 1 wherein said relative importance is based on frame dependency information associated with each of said frames.
14. The method described in Claim 13 wherein said frame dependency information comprises the number of coded frames in said data dependent on said coded frame.
17. The method described in Claim 1 further comprising forwarding said data packet.
18. The method described in Claim 1 wherein said media data is retrieved from storage.
19. The method described in Claim 1 further comprising storing said data packet in a storage medium.
20. A method for transcoding media in a network, comprising:
  - accessing a data packet of said media comprising a payload and a transcoder readable payload header, wherein said payload comprises data coded as a plurality of frames;
  - reading said transcoder readable payload header in said data packet; and

transcoding said data packet using information in said transcoder readable payload header, wherein said information comprises a relative importance associated with each of said frames.

21. The method for transcoding media described in Claim 20 further comprising buffering said data packet.

22. The method for transcoding media described in Claim 20 wherein said media is communicated in a plurality of channels.

23. The method for transcoding media described in Claim 20 further comprising forwarding said data packet.

24. The method for transcoding media described in Claim 23 wherein said forwarding is accomplished in a plurality of channels.

25. The method for transcoding media described in Claim 20 further comprising decrypting said transcoder readable payload header.

29. The method for transcoding media described in Claim 20 wherein said transcoder readable payload header enables transcoding of said data packet while said payload remains encrypted.

30. The method for transcoding media described in Claim 20 wherein said transcoding comprises truncating said payload.

31. The method for transcoding media described in Claim 30 wherein said truncating comprises deleting a coded frame from said payload.

32. The method for transcoding media described in Claim 20 wherein said transcoding comprises deleting said packet.

33. The method for transcoding media described in Claim 20 wherein said data is stored in a storage medium.

34. A computer readable medium having a data packet stored therein for causing a functional change in the operation of a device, said data packet comprising:

- a payload;
- a transcoder readable payload header; and
- a packet header, wherein said payload comprises a plurality of coded frames and wherein said transcoder readable payload header comprises information associating a relative importance with each of said frames.

36. The computer readable medium described in Claim 34, wherein said coded frames are coded using a method comprising I, P and B-frames.

37. The computer readable medium described in Claim 34, wherein said frames are coded using an MPEG coding scheme.

38. The computer readable medium described in Claim 34, wherein said transcoder readable payload header enables transcoding said data packet.

39. The computer readable medium described in Claim 34, wherein said payload and said transcoder-readable payload header are enabled to be encrypted independently of said packet header.

40. The computer readable medium described in Claim 34, wherein said transcoder-readable payload header is enabled to be decrypted independently of said payload.

41. The computer readable medium described in Claim 34, wherein said transcoder readable header is enabled to be read independently of said payload.

42. The computer readable medium described in Claim 34, wherein said transcoder readable payload header is enabled to be written independently of said coded frames.

43. The computer readable medium described in Claim 34, wherein each of said coded frames is enabled to be deleted from said data packet independently of other coded frames in said packet.

44. The computer readable medium described in Claim 42, wherein said data packet is stored in a storage medium.

IX. Evidence Appendix

No evidence is herein appended.

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X. Related Proceedings Appendix

No related proceedings.

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